

- Fig. 3.* Detached spicules of the envelope enclosing the gemmules. Enlarged 100 diameters.
- Fig. 4.* One of the monticules of gemmules, showing the irregularly arranged cylindrical spicules of the outer layer; these are partially weathered off at one end, and the surface of one of the gemmules is exposed. Enlarged 20 diameters.
- Fig. 5.* A portion of the exterior surface of a gemmule, showing the natural arrangement of the amphidisc-spicules. Enlarged 200 diameters.
- Fig. 6.* Detached amphidisc-spicules. Enlarged 660 diameters.

Uruguaya pygmaea, n. sp.

- Fig. 7.* A complete specimen, in which two oscules are developed. It is growing at the base of *U. Macandrewi*. Enlarged 8 diameters.
- Fig. 8.* A portion of the exterior surface, showing the arrangement of the spicules. Enlarged 60 diameters.
- Fig. 9.* Detached skeleton-spicules. Enlarged 100 diameters.
- Fig. 10.* Detached amphidisc-spicules. Enlarged 660 diameters.

Uruguaya Macandrewi, n. sp.

- Fig. 11.* A fragment of the type specimen, showing its mode of growth and the character of the oscules. Natural size.
- Fig. 12.* Cylindrical and immature acerate spicules of the skeleton. Enlarged 100 diameters.
- Fig. 13.* Detached spicules of the monticular envelope. Enlarged 100 diameters.
- Fig. 14.* Detached amphidisc-spicules. Enlarged 660 diameters.

Uruguaya corallioides, Bowbk., sp.

- Fig. 15.* A fragment of the type specimen, showing the mode of growth and the arrangement of the oscules. Natural size.
- Fig. 16.* Detached skeleton-spicules. Enlarged 100 diameters.

[The originals of all the figures are in the British
(Natural History) Museum.]

II.—*Polyzoa from Port Phillip.* By R. KIRKPATRICK,
British Museum (Natural History).

[Plate II.]

A COLLECTION of Polyzoa dredged in the neighbourhood of Port Phillip by Mr. J. Bracebridge Wilson was sent by him to the Natural-History Museum.

The collection contains representatives of ninety-five species, of which six appear to have been undescribed, and fifteen have not been recorded from the locality. The genera *Amathia* and *Catenicella* were most largely represented.

In this paper the new species are described, those new to the locality recorded, and remarks made on points of interest in the known species.

Group *ECTOPROCTA*.

Suborder *CHEILOSTOMATA*.

Family *Flustridæ*.

Genus *FLUSTRA*.

Flustra reticulum, Hincks.

Flustra reticulum, Hincks, Ann. & Mag. Nat. Hist. [5] x. p. 163, pl. vii. fig. 4.

There are two specimens of *F. reticulum* in this collection, one answering in every particular the description given by Hincks, the other presenting certain curious differences. In the latter the marginal radical (?) fibres have become greatly developed, bending backwards on each side and branching copiously in a dichotomous manner. The horny spines from each side meet and interlace across the middle of the posterior surface of the branches.

The colour of the variety differs from that of the typical form, being pale yellow in place of dark brown. If it is necessary to make a new variety of this form, a name descriptive of the curious modification of the marginal spines is suggested in var. "*dorsitecta*."

Family *Cribrilinidæ*.

Genus *CRIBRILINA*, Gray.

Cribrilina philomela, Busk.

Cribrilina philomela, Busk, Chall. Rep. p. 132, pl. xvii. fig. 6.

The specimen incrusts *Idmonea marionensis*, Busk. The zoecia differ in no respect from those of the Hemescharan form described by Busk. There are no vicarious avicularia present; hence the Port-Phillip specimen, although incrusting, is not identical with var. *adnata*, Busk.

Family *Escharidæ*.

Genus *LEPRALIA*, Johnston.

Lepralia Pallasiana.

The specimen from Port Phillip Heads has a finely deve-

loped funnel-shaped peristome. The peristome resembles milk-white porcelain; the inner surface is marked with longitudinal striæ, and the upper border is rolled out and thickened. Surface of zoëcia punctured in young cells; in old cells the punctures are obliterated and their place taken by small round knobs, as in *L. canthariformis*, Busk; but in many cells the horseshoe shape of orifice and straight lower border are apparent.

Hab. Growing on pebbles.

Lepralia Poissonii, Aud.

In the specimen from Port Phillip the vibraculoid mandibles cross each other on the front of the zoëcia, in some cases even being directed upwards. In Mediterranean and Mauritius specimens these organs are directed downwards parallel to each other.

Hab. Incrusting Algæ.

Genus HASWELLIA, Busk.

Haswellia victoriensis, n. sp. (Pl. II. figs. 1, 1 a.)

Zoarium branching, subdichotomous, branches 1 millim. in diameter. Zoëcia irregularly verticillate, in whorls of from eight to twelve; zoëcia ovate, walls thick, obscurely punctured round margins; without special pore; orifice pyriform, the notch occupying the whole proximal margin; peristome forming a pointed triangular elevation on each side, deficient in front and behind. No oral avicularia; scattered over zoarium avicularia with broad, thick, semicircular or spatulate mandibles. Oëcia depressed, marked in front with semicircular area with radiating ridges and bounded by a ridge. Operculum $\cdot 1 \times \cdot 07$ millim.

The species described above is most nearly related to *H. auriculata*, Busk, but differs in the following particulars:—The branches of *H. victoriensis* are double the thickness of those of *H. auriculata*; there are no oral avicularia and no trace of special pore in *H. victoriensis*.

Genus PORELLA, Gray.

Porella lævis, var. *subcompressa*.

Porella lævis, Hincks, Brit. Mar. Pol. p. 334, pl. xlvii. figs. 10, 11.

Porella lævis, var. *subcompressa*, Busk, Chall. Rep. p. 149, pl. xx. fig. 3.

Geographical distribution of P. lævis.—Norway, 30–300 fath.; Greenland; Nova Zembla; Kara Sea.

Geographical distribution of P. lævis, var. subcompressa.
—Porto Praya, St. Iago, Cape Verd, 100-150 fath.
(‘Challenger’); Port Phillip.

It will be seen from the above list of localities that the range of this species extends over a very wide area.

Suborder CYCLOSTOMATA.

Family Tubuliporidæ.

Genus IDMONEA, Lamouroux.

Idmonea marionensis, Busk.

For references and localities see Busk, Chall. Rep., Polyzoa, pt. ii. p. 11.

Family Horneridæ.

Genus HORNERA.

Hornera lichenooides, Linn.

For geographical distribution see Busk, Chall. Rep., Polyzoa, pt. ii. p. 16.

Family Tubuliporidæ.

Genus ENTALOPHORA, Lamouroux.

Entalophora parasitica, Busk.

The Port Phillip specimen presents one trifling difference from Busk’s description. The surface of the zoecia is whitish and marked with brown spots, instead of being brown and marked with white spots.

Hab. Attached to horny fibres of *Catenicella*.

Loc. New Zealand (*Busk*); Port Phillip.

Genus BIDIASTOPORA, d’Orbigny.

Bidiastopora torquata, n. sp. (Pl. II. figs. 2, 2 a, 2 b, 2 c.)

? *Bidiastopora compressa*, d’Orb.

Zoarium erect, dichotomously branched, the branches compressed, bilaminar, twisted on their long axes, diameter 1-1.3 millim. Zoecia arranged in oblique half-spiral

series, from five to nine in each series; zoëcia slightly projecting, surface obscurely granular in old cells, punctured in young cells; section of branches showing a transverse thin double lamina, which projects beyond the ends of the branches. Oœcia oval, .8 millim. long by .6 broad, with four to six zoëcial openings on surface.

The genus *Bidiastopora* was founded by d'Orbigny for the reception of forms with compressed branches, the cells on each side having a quincuncial arrangement, and with a lamina in the middle of the branches. The main difference between *Entalophora* (Lamouroux) and *Bidiastopora* lay in the fact that in the former the branches are compressed, in the latter rounded. In some parts of the zoarium the lamina may be obscure or even absent; but its occurrence in any part would indicate that the species should not be classed in the genus *Entalophora*.

In arranging the Cyclostomata systematically great importance is necessarily attached to the structure of the zoarium, since the individual zoëcia present such slight differences. The presence of the median double lamina is a sufficiently important structural characteristic to warrant the reintroduction of d'Orbigny's genus. In *Entalophora* (*Pustulopora*) the rounded branches are formed of fascicles of zoëcia, and a transverse section is porous throughout.

Family Heteroporidae?

Genus HETEROPORA, Blainville.

Heteropora mœandrina, n. sp. (Pl. II. figs. 8, 8 a, 8 b, 8 c.)

Zoarium forming a thick crust, loosely encircling stems of *Amathia*; the surface marked with irregularly arranged ridges and depressions; the crests of ridges smooth and generally bare of zoëcial pores; zoëcial orifices circular, with thickened tuberculated border; zoëcia surrounded by five or six cancelli.

The specimen above described differs considerably from d'Orbigny's *Plethopora cervicornis* ('Paléontologie Française,' tom. v. p. 1045, pl. 799. figs. 4, 5), but resembles a specimen described and figured as *Heteropora cervicornis*, d'Orb., by Mr. Waters (Journ. Roy. Micr. Soc. vol. ii. p. 390, pl. xv.). MacGillivray's *Densipora corrugata* (J. R. S. V. 1880) appears to resemble very closely *Heteropora cervicornis*, d'Orb. The specimen from Port Phillip measures 10 × 7 millim.

A fully developed specimen of *H. mœandrina* would per-

haps form a dendritic growth. D'Orbigny describes the branches of *Heteropora cervicornis* as being provided with large transverse tubercles, forming crests, with the cellules arranged along the middle, the base and intervals of these groups being pierced by a number of intermediate pores. In *H. mæandrina* the pores are deficient along the crests and fill up the floor of the depressions.

Along the length of the zoœcial tubes the pores and so-called septa can be seen as in other species of *Heteropora*.

Suborder CTENOSTOMATA.

Family Alcyonidiidæ.

Genus ALCYONIDIUM, Lamouroux.

Alcyonidium mytili, Dalyell. (Pl. II. figs. 6, 6 a.)

The cells are hexagonal and the septa between the cells distinctly visible.

Hab. Incrusting the stems and branches of *Amathia*.

The incrusting growth is probably not parasitic on the *Amathia*, since the contents of the biserial groups of cells of the latter are not absorbed, but the *Amathia* forms an efficient axial support. In Great Britain *A. mytili* incrusts shells, stones, and Algæ.

Geographical distribution. Great Britain, Cattegat, Baltic.

Family Vesiculariidæ.

Genus AMATHIA.

The following species of *Amathia* were represented in this collection:—

- Amathia australis*, Tenison-Woods.
- *bicornis*, Tenison-Woods.
- *biseriata*, Krauss.
- *connexa*, Busk.
- *lendigera*, Linn.
- *Wilsoni*, n. sp.
- *pinnata*, n. sp.
- *Brongniartii*, Desmarest & Lesueur.

Amathia biseriata, Krauss.

Amathia biseriata, Krauss, Corallineen und Zoophyten der Südsee, p. 23, fig. 1, a, b, c.

? *Amathia inarmata*, MacGillivray, Trans. Roy. Soc. Vict. vol. xxiii. p. 183.

Excellent figures of this species are given in Krauss's memoir. The characteristic "ramis falcatis" mentioned by Krauss are a well-marked feature of the species, and enable the distinction to be made from *A. lendigera* and from *A. Brongniartii*, Desm. & Les.

Krauss mentions that the internodes are much shorter than in *A. lendigera*.

Amathia Wilsoni, n. sp. (Pl. II. figs. 4, 4 a.)

Zoarium formed of delicate, feathery, subcylindrical bunches or festoons. Branching of main branches tripartite, three branches given off at each node, two laterally and one posteriorly; internodes partly occupied on anterior surface only by from five to eight pairs of zoecia; lateral and posterior branches (*i. e.* those given off at the nodes) branching pinnately, with the biserial groups of zoecia on the upper surface, the last two or three internodes unoccupied by zoecia (thus giving the plumose appearance to the zoarium); one of the anterior branches of each lateral branch much hypertrophied and with that of the opposite side forming an arch across the anterior surface of a main branch (thus giving the festoons a somewhat cylindrical appearance). Dimensions of zoecia $\cdot 5$ by $\cdot 14$ millim. Stems whitish, thick, $\cdot 4$ to $\cdot 5$ millim. in diameter.

The system of branching of this beautiful species is highly characteristic. In the collection of the Natural-History Museum there is a specimen from Port Jackson.

Amathia Brongniartii, Desm. & Les. (Pl. II. figs. 3, 3 a.)

Zoarium reddish brown, branched dichotomously; internodes long, straight, occupied for nearly the whole length (except $\cdot 1$ millim. at the lower end) by from ten to twelve pairs of rather broad zoecia, $\cdot 5 \times \cdot 2$ millim. Diameter of stems $\cdot 1$ to $\cdot 15$ millim.

A. Brongniartii differs from *A. biseriata*, Krauss, the branching of which is also dichotomous, in the internodes being straight, not curved ("ramis falcatis," Krauss), and in the greater length of the internodes. The posterior aspect of *A. Brongniartii* shows the zoecia bulging beyond the stem on each side.

Through the kindness of Mr. Waters I have had the opportunity of looking through certain unpublished plates, engraved by Lesueur in 1829, in which are figured "poly-piers flexibles" collected in Australia.

The manuscript by Desmarest and Lesueur explaining the plates was found by M. Pergens in the Paris Museum. In the 'Bulletin des séances de la Société royale Malacologique de Belgique,' tome xxii. (1887), M. Pergens gives a list of the names of species given by Desmarest and Lesueur, and appends thereto a list of names given by later authors. The greater part of the collection is preserved in the Havre Museum, the remainder having been lost. In the figures of Lesueur several well-known species can be recognized.

The following names of species of *Amathia* are copied from the list of M. Pergens:—

Desmarest and Lesueur.

Sirinx Archimedi.

— spinosa.

— cruciformis.

— circumplicata.

Amathia Brongniartii.

— Lemanii.

M. Pergens.

Amathia spiralis, telle que Busk (Chall. Rep. Polyzoa, ii. p. 34, pl. vi. fig. 2) figure. Je doute si c'est réellement l'espèce de Lamouroux.

— bicornis, *Tenison-Woods*.— connexa, *Busk*.— crispa, *Lamarck*.

—, sp.

— cornuta, *Lamarck*.

The specimen described and figured by Busk as *Amathia spiralis*, Lamouroux, is probably *A. convoluta*, Lamouroux. The zoecia of the spiral are exsert, and not adnate to the stem along their inner surfaces.

Amathia pinnata, n. sp. (Pl. II. figs. 5, 5 a.)

Zoarium pinnately branched; internodes long, occupied for five sixths of their length by from twelve to sixteen pairs of zoecia; zoecia on the same face of the stem. Dimensions of zoecia about 0.5×0.11 millim.; breadth of stems 0.25 millim.

The characteristic feature of this species is the regular pinnate branching. Where the zoecia do not present any special characteristic, the arrangement of the zoecia on the stems and branches and the mode of branching are almost the sole means for classifying the species of this genus.

Family *Cylindræciidæ*.Genus *CYLINDRÆCIUM*, Hincks.*Cylindræcium altum*, n. sp. (Pl. II. figs. 7, 7 a.)

Zoarium forming a slender, creeping, network stolon,

dilating at the nodes of the network into expansions, whence arise erect, tubular, branching (?) zoecia. Zoecia very tall, opaque, contracted at base, where they joined the expansions of stolon. Height of fully developed zoecia 4·6 millim.; breadth from ·16 to ·2 millim.; breadth of stolon ·02 millim.

C. altum is closely allied to *C. giganteum*, Busk (Quart. Journ. Micr. Sci. vol. iv. p. 93, pl. v. figs. 1, 2). In *C. altum* the zoecia are higher and narrower than those of *C. giganteum* and are contracted at the base. *C. altum* more nearly resembles *C. dilatatum* as regards the characters of the stolon.

The respective dimensions of the zoecia of these three species are as follows:—

	Length.	Breadth.
<i>C. giganteum</i>	3·5	0·20–0·25
<i>C. dilatatum</i>	0·9	0·13
<i>C. altum</i>	4·6	0·16–0·2

In the absence of more specimens it would be rash to assume that the “branching” in *C. altum* is a normal and constant condition of that species, and not a mere sport. The reasons for caution are, firstly, that several cells of the solitary specimen of *C. altum* are not branched, and secondly, that branched cells are occasionally met with in other species of *Cylindrocium*. The “branched” condition of zoecia might be accounted for in three ways:—

1. The main zoecium may bifurcate or may produce a secondary zoecium by budding, the polypide of the bud later remaining in organic connexion with that of the primary cell. *Anguinella palmata*, Van Beneden, presents the nearest resemblance to a *Cylindrocium* with branching zoecia.

2. Embryos may settle down on the zoecial tubes and there develop; such a condition is well seen in the Hydroid *Tubularia indivisa*.

3. Portions of stolon may become fixed to the walls of a zoecium, and a zoecium develop at that point.

Judging from the specimen, any one or all of these events may have taken place, for zoecia can be seen growing from the walls of primary zoecia and unconnected with stolon; others again have a portion of stolon-tube growing from the attached base; and, lastly, one cell has bifurcated.

Cylindrocium papuense, Busk.

Hab. Growing on *Amathie*.

Loc. Station 188, lat. 9° 59' S., long. 139° 42' E., 28 fath. ('Challenger').

Group *ENTOPROCTA*.

Family *Pedicellinidæ*.

Genus *PEDICELLINA*.

Pedicellina cernua, Pallas.

The Port-Phillip specimen differs from those found in European waters in having the stalks shorter and thicker in comparison with the heads of the polypides. The stalks are covered with spines and much contracted at the point of junction with the polypides.

Hab. Creeping on Algæ.

Genus *ASCOPODARIA*, Busk.

Ascopodaria gracilis, Sars.

Hab. The jointed reticulate stolon creeps on Algæ. Five or six stolon-shoots radiate out from the base of each polypide-stalk and join with those from other polypides to form an almost regular reticulum. The upper end of the chitinous portion of the polypide-stalks is pointed on one side as in *A. fruticosa*, Hincks.

EXPLANATION OF PLATE II.

- Fig. 1. Haswellia victoriensis*, n. sp. 1 *a.* Portion of branch, magnified (the zoecia are seldom arranged so regularly as in figure). 1 *b.* Operculum.
- Fig. 2. Bidiastopora torquata*, n. sp. 2 *a.* Portion of branch, magnified. 2 *b.* Section, showing double lamina. 2 *c.* Section of an *Entalophora*.
- Figs. 3, 3 a. Amathia Brongniartii*, Desm. & Les. (the zoecia should be longer).
- Fig. 4. Amathia Wilsoni*, n. sp., posterior aspect. 4 *a.* The same, magnified, posterior aspect; the zoecia of anterior aspect are just visible to the left of main branch.
- Figs. 5, 5 a. Amathia pinnata*, n. sp.
- Figs. 6, 6 a. Alcyonidium mytili*, Dalyell.
- Fig. 7. Cylindracium altum*, n. sp. 7 *a.* Piece of stolon-tube at base of attached zoecium.
- Fig. 8. Heteropora mæandrina*, n. sp. 8 *a.* Magnified. 8 *b.* Zoecium surrounded by cancelli. 8 *c.* Longitudinal section, showing pores.